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EXAMINER	
RUDE, TIMOTHY L	
ART UNIT	**PAPER NUMBER**
2883	

DATE MAILED: 08/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/737,770	SONG, IN-DUK	
	Examiner	Art Unit	
	Timothy L. Rude	2883	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 May 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2-19 and 21-42* is/are pending in the application.

4a) Of the above claim(s) *11,19 and 35-42* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *2-10,12-18 and 21-34* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claims

1. Claims 4 and 17 are amended. Objections to claims 4 and 17 are withdrawn. Claims 41 and 42 are added.

Election/Restrictions

Newly submitted claims 41 and 42 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons:

The instant Application is drawn to species wherein the auxiliary common line on the first substrate is connected with the common electrodes, wherein the common electrodes are formed on a same layer of the first substrate as the gate line [Applicant's Figure 11B]. Newly added claims with limitations as to "wherein the common electrodes are formed on the common line" are considered contradictory in that they are drawn to non-elected species [Applicant's Figure 11A]. Please reference specification page 11, lines 3 and 4.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 41 and 42 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Drawings

The drawings were received on 30 May 2006. Drawing Figure 8 is accepted by examiner.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 2, 4, 5, 7, 10, 12, 17, 18, 21-22, and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted prior art (APA) in view of Jeon et al (Jeon) USPAT 6,362,858 B1, Wakagi et al (Wakagi) USPAT 6,300,995 B1, and further in view of Ando et al (Ando) USPAT 6,356,330 B1.

As to claims 2, 4, 5, 7, 10, 12, and 21-22, APA discloses in Figure 8 an in-plane switching liquid crystal display (LCD) device comprising: common electrodes, 54a, alternating and parallel with pixel electrodes, 66a, and a gate line, 50, for a TFT and a common line, 54, wherein common electrodes are arranged to directly contact the common line; and a first connecting line, 66, parallel to the gate line, wherein the plurality of pixel electrodes are perpendicular to the first connecting line, first ends of the

pixel electrodes are connected to the first connecting line and second ends of the pixel electrodes are connected to a second connecting line, 68.

APA discloses in Figures 7A and 7B (more clear illustration than Figure 8 in these regards, Figure 8 is objected to above) that the scan line, 2 (gate line), is conventionally formed on the substrate, 1A, and that the reference signal line, 4 (common line), and the reference electrode, 14 (common electrode), are also formed on the same substrate (Applicant's wherein the common electrode is formed on the substrate like the gate line) and a are covered by a first insulating film, 11 (gate-insulating layer).

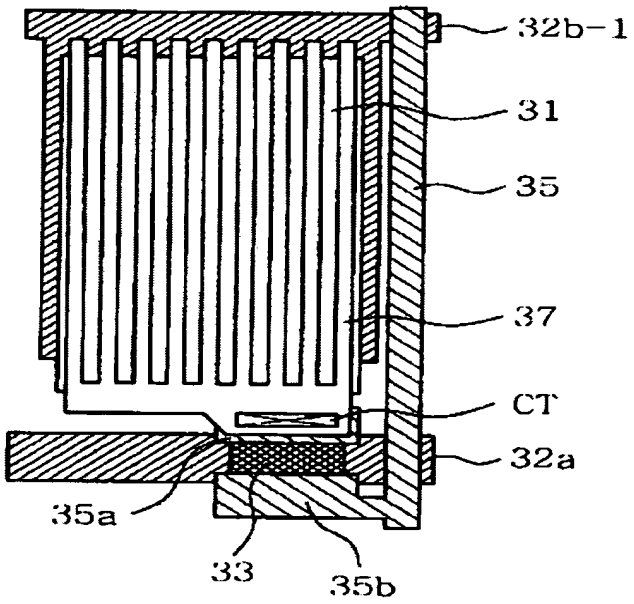
APA does not explicitly disclose 1) transparent pixel and common electrodes and an auxiliary common line.

APA does not explicitly disclose 2) a storage capacitor over the common line, wherein the storage capacitor contacts the second connecting line via a contact hole.

Jeon teaches 1) in Figures 2A-2E, an in-plane switching LCD device comprising: a gate line, 32a, on a first substrate; a data line, 35, on the first substrate, the data line being perpendicular (as illustrated) to the gate line; a common line, 32b-1, on the first substrate, the common line being parallel (as illustrated) with the gate line and being formed of a metal (Applicant's first material, Cr for both gate line and common line; col. 2, lines 49-58, especially lines 55-58) (Applicant's wherein the common electrode is formed on the substrate like the gate line); a pixel electrode, 37, (ITO; col. 3, lines 18-22) and the common electrode, 31, (ITO; col. 2, lines 64-67) being formed of a transparent conductive material (ITO, Applicant's second material different from the first

material); and a liquid crystal layer between the first and second substrates (inherent to comprising a LCD device) made by a method that simplifies the process by reducing the mask number.

FIG.2E



Jeon is evidence that ordinary workers in the art of liquid crystals would find the reason, suggestion, or motivation to modify the LCD design to permit manufacture by the method of Jeon to simplify the process by reducing the mask number.

Therefore, it would have been obvious to one having ordinary skill in the art of liquid crystals at the time the invention was made to modify the LCD of APA with the

specific layered structure of Jeon to permit manufacture by the simplified process of Jeon to reducing the mask number.

Jeon is not applied to teach electrode shape in plan view, however, should Applicant argue that Jeon teaches away from comb electrodes, Wakagi is applied:

Wakagi teaches common electrodes having finger portions arranged in parallel to provide adequate lateral spacing between common electrodes and pixel electrodes to improve aperture ratio [col. 5, lines 31-44] for better display performance.

Wakagi is evidence that ordinary workers in the art of liquid crystals would find the reason, suggestion, or motivation to add common electrodes having finger portions arranged in parallel to provide adequate lateral spacing between common electrodes and pixel electrodes to improve aperture ratio for better display performance.

Therefore, it would have been obvious to one having ordinary skill in the art of liquid crystals at the time the invention was made to modify the LCD of APA in view of Jeon with the common electrodes having finger portions arranged in parallel to provide adequate lateral spacing between common electrodes and pixel electrodes to improve aperture ratio for better display performance.

Ando teaches 2) [col. 6, line 29 through col. 8, line 46] a storage capacitor, 105 (Applicants storage electrode), over the common line, 101, and between the pixel electrode and the first substrate, wherein the storage capacitor contacts the second connecting line, 106, via a contact hole per Figures 1 and 2 in order to comprise his invention for an in-plane switched LCD with improved aperture ratio [abstract].

FIG. 1

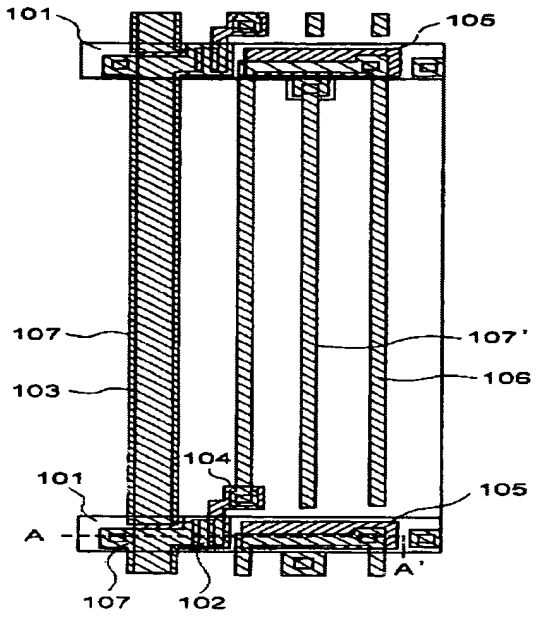
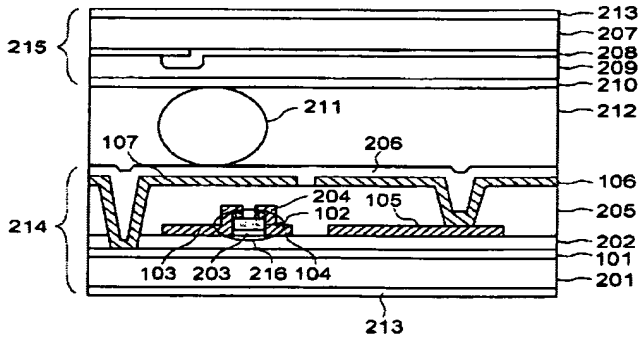


FIG. 2



Ando is evidence that workers of ordinary skill in the art would find the reason, suggestion, or motivation to add to an in plane switched LCD a storage capacitor over

the common line, wherein the storage capacitor contacts the second connecting line via a contact hole to comprise a display with improved aperture ratio.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention of APA in view of Jeon and Wakagi with the storage capacitor over the common line, wherein the storage capacitor contacts the second connecting line via a contact hole of Ando to comprise a display with improved aperture ratio.

Additionally as to claims 4 and 5, as combined above, Jeon discloses a device further comprising: a first ITO layer (Figures 2A-2C and col. 2, lines 49-52) (Applicant's auxiliary common line) on the first substrate (col. 2, lines 49-67, especially lines 55-58), the auxiliary common line being connected with the common electrode, 31, on the same layer as the gate electrode (formed during same process steps, col. 2, lines 55-58). The first ITO layer of Jeon exists everywhere under the first metal layer of Jeon, forming Applicant's auxiliary lines, it is the same ITO layer that forms the common electrode, and the portion of the ITO layer that is under the common line is connected to the portion of the ITO layer that serves as the common electrode.

Jeon is evidence that ordinary workers in the art of liquid crystals would find the reason, suggestion, or motivation to modify the LCD design to permit manufacture by the method of Jeon to simplify the process by reducing the mask number.

Therefore, it would have been obvious to one having ordinary skill in the art of liquid crystals at the time the invention was made to modify the LCD of APA with the specific layered structure of Jeon to permit manufacture by the simplified process of Jeon to reducing the mask number.

Additionally as to claim 17, as combined above, Jeon discloses in Figures 2A-2E, in-plane switching Liquid Crystal Display (LCD) device, comprising: a first substrate and a second substrate a gate line, 32a, on the first substrate; a metal common line, 32b, (Cr for both gate line and common line; col. 2, lines 49-58) on the first substrate, the common line parallel (as illustrated) to the gate line, a data line, 35, on the first substrate, the data line being perpendicular (as illustrated) to the gate line; a common electrode, 31, on the first substrate; a thin film transistor having a gate electrode, a source electrode, 35a, and a drain electrode, 35b, formed on the first substrate; liquid crystal interposed between the first and second substrates (inherent to comprising a LCD device); a pixel electrode, 37, contacting the source electrode (Applicant's drain electrode) of the thin film transistor; and wherein, the pixel and common electrodes are formed of a transparent conductive material (ITO; col. 3, lines 18-22, and col. 2, lines 64-67).

Jeon is evidence that ordinary workers in the art of liquid crystals would find the reason, suggestion, or motivation to modify the LCD design to permit manufacture by the method of Jeon to simplify the process by reducing the mask number.

Therefore, it would have been obvious to one having ordinary skill in the art of liquid crystals at the time the invention was made to modify the LCD of APA with the specific layered structure of Jeon to permit manufacture by the simplified process of Jeon to reducing the mask number.

Additionally as to claim 18, Jeon, as combined above, discloses the LCD device of claim 17, wherein a portion of the common line overlies a portion of the common electrode (Figures 2A-2E, especially Figure 2C, and col. 2, lines 49-67, especially lines 64-67).

Jeon is evidence that ordinary workers in the art of liquid crystals would find the reason, suggestion, or motivation to modify the LCD design to permit manufacture by the method of Jeon to simplify the process by reducing the mask number.

Therefore, it would have been obvious to one having ordinary skill in the art of liquid crystals at the time the invention was made to modify the LCD of APA with the specific layered structure of Jeon to permit manufacture by the simplified process of Jeon to reducing the mask number.

As to claim 33, Jeon, as combined above, discloses the LCD device of claim 17, wherein the transparent conductive material includes indium tin oxide (ITO; col. 3, lines 18-22, and col. 2, lines 64-67).

Jeon is evidence that ordinary workers in the art of liquid crystals would find the reason, suggestion, or motivation to modify the LCD design to permit manufacture by the method of Jeon to simplify the process by reducing the mask number.

Therefore, it would have been obvious to one having ordinary skill in the art of liquid crystals at the time the invention was made to modify the LCD of APA with the specific layered structure of Jeon to permit manufacture by the simplified process of Jeon to reducing the mask number.

3. Claims 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over APA in view of Jeon, Wakagi, and Ando, as applied to claims 4 and 12 above, in view of Yoshioka et al (Yoshioka) USPAT 6,323,918 B1.

As to claims 13-15, APA in view of Jeon, Wakagi, and Ando disclose the device above.

APA in view of Jeon, Wakagi, and Ando do not explicitly disclose a device further comprising a passivation layer over the gate-insulating layer, a common electrode on the passivation layer, a black matrix on the passivation layer covering the active layer, wherein the black matrix is made of the same material as the pixel electrodes.

Yoshioka teaches in figure 30 (col. 16, line 17 through col. 17, line 15) a device further comprising an insulating film, 105 (Applicant's gate-insulating layer), over the gate line, 114, an interlayer insulating film, 105 and 109, (Applicant's passivation layer)

over the gate-insulating layer, a pixel electrode, 110, on the passivation layer, a black matrix, 118, on the passivation layer covering the polysilicon active layer, 102, wherein the black matrix is made of Ti, Cr, or the like (Applicant's the same material as the pixel electrodes) (col. 9, lines 28-37) to form a capacitor comprising the black matrix (Abstract).

Yoshioka is evidence that ordinary workers in the art of liquid crystals would find the reason, suggestion, or motivation to add a passivation layer over the gate-insulating layer, a common electrode on the passivation layer, a black matrix on the passivation layer covering the active layer, wherein the black matrix is made of the same material as the pixel electrodes to form a capacitor comprising the black matrix to improve display performance.

Therefore, it would have been obvious to one having ordinary skill in the art of liquid crystals at the time the invention was made to modify the LCD of APA in view of Jeon, Wakagi, and Ando with the passivation layer over the gate-insulating layer, a common electrode on the passivation layer, a black matrix on the passivation layer covering the active layer, wherein the black matrix is made of the same material as the pixel electrodes of Yoshioka to form a capacitor comprising the black matrix to improve display performance.

4. Claims 3, 6, and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over APA in view of Jeon, Wakagi, and Ando, as applied to claims 4 and 17 above, in view of Colgan et al (Colgan) USPAT 6,278,502 B1.

As to claims 3, 6, and 34, APA in view of Jeon, Wakagi, and Ando discloses the device of claims 4 and 17.

APA in view of Jeon, Wakagi, and Ando dose not explicitly disclose a device wherein the transparent conductive material includes indium zinc oxide (IZO).

Colgan teaches the use of IZO and ITO (col. 2, lines 58-67, col. 3, lines 1-4, col. 3, lines 21-22, and col. 6, lines 6-8) as preferred materials for the formation of transparent conductive layers.

Colgan is evidence that ordinary workers in the art of liquid crystals would find the reason, suggestion, or motivation to use IZO as a preferred material for the formation of transparent conductive layers.

Therefore, it would have been obvious to one having ordinary skill in the art of liquid crystals at the time the invention was made to modify the LCD of APA in view of Jeon, Wakagi, and Ando with the IZO of Colgan.

5. Claims 8, 9, and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over APA in view of Jeon, Wakagi, and Ando, as applied to claims 1 and 17 above, in view of Son et al (Son) USPAT US 2002/0008824 A1.

As to claim 8, APA in view of Jeon, Wakagi, and Ando discloses the device of claim 4.

APA in view of Jeon, Wakagi, and Ando, does not explicitly disclose a device, further comprising a first alignment layer on the first substrate.

Son teaches the use of a first alignment layer on the first substrate to align the liquid crystal molecules (para 0019).

Son is evidence that ordinary workers in the art of liquid crystals would find the reason, suggestion, or motivation to use a first alignment layer on the first substrate to align the liquid crystal molecules

Therefore, it would have been obvious to one having ordinary skill in the art of liquid crystals at the time the invention was made to modify the LCD of APA in view of Jeon, Wakagi, and Ando with the alignment layer of Son.

As to claim 9, the device of claim 8 is taught above.

APA in view of Jeon, Wakagi, and Ando does not explicitly disclose a device, wherein the first alignment layer is selected from a group consisting of polyimide and photo-alignment material.

Son teaches a first alignment layer selected from a group consisting of polyimide and photo-alignment material (para 0030).

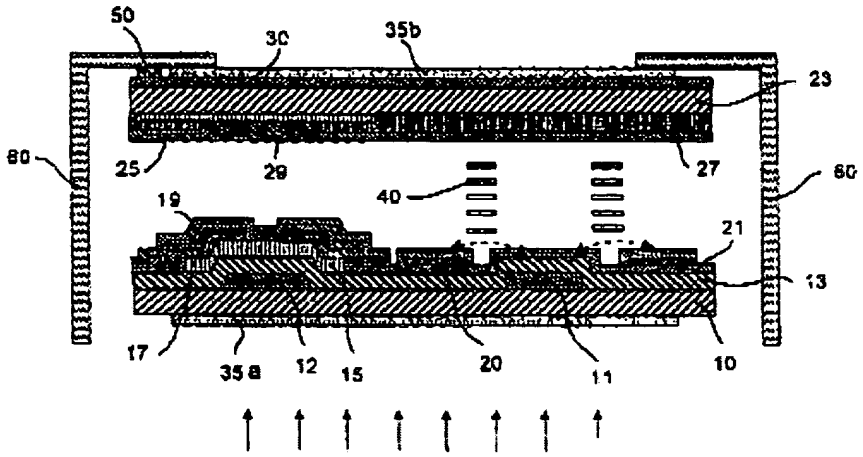
Son is evidence that ordinary workers in the art of liquid crystals would find the reason, suggestion, or motivation to use a first alignment layer selected from a group consisting of polyimide and photo-alignment material to align the liquid crystal molecules

Therefore, it would have been obvious to one having ordinary skill in the art of liquid crystals at the time the invention was made to modify the LCD of APA in view of Jeon, Wakagi, and Ando with the alignment layer of polyimide or photo-alignment material of Son.

As to claim 32, APA in view of Jeon, Wakagi, and Ando discloses the LCD device of claim 17.

APA in view of Jeon, Wakagi, and Ando does not explicitly disclose a device, further comprising a black matrix on the second substrate.

FIG. 3



Son teaches in Figure 3, an LCD device, further comprising a light-shielding layer, 25, (Applicant's black matrix) on the second substrate, 23, (para 0029).

Son is evidence that ordinary workers in the art of liquid crystals would find the reason, suggestion, or motivation to use a black matrix on the second substrate to prevent light from leaking around the TFT (first two lines of para 0029).

Therefore, it would have been obvious to one having ordinary skill in the art of liquid crystals at the time the invention was made to modify the LCD of APA in view of Jeon, Wakagi, and Ando with the black matrix on the second substrate of Son.

6. Claims 23-25, and 27-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over APA in view of Jeon, Wakagi, and Ando, as applied to claims 1 and 17 above, in view of Ishikura et al (Ishikura) USPAT 6,219,125 B1.

As to claims 23, and 24-25, APA in view of Jeon, Wakagi, and Ando discloses the LCD device of claim 17 further comprising an auxiliary common electrode under the common line, wherein the common electrode is electrically connected to the auxiliary common electrode.

APA in view of Jeon, Wakagi, and Ando does not explicitly disclose a device further comprising an auxiliary common electrode covering the common line.

Ishikura teaches in Figure 1 (col. 3, lines 34-54) a device wherein a portion of the ITO transparent electrode, 5, (Applicant's common electrode) overlies a portion of the principle electrocunductive layer, 12, (Applicant's common line), to improve conductivity and reduce resulting voltage waveform deformation (or distortion) (col. 1, lines 14-39).

Ishikura is evidence that ordinary workers in the art of liquid crystals would find the reason, suggestion, or motivation to add a metal layer under the transparent electrode layer to improve conductivity and reduce resulting voltage waveform deformation (or distortion).

Therefore, it would have been obvious to one having ordinary skill in the art of liquid crystals at the time the invention was made to modify the LCD of APA in view of Jeon, Wakagi, and Ando with the transparent electrode over the metal conductive layer of Ishikura, resulting in an auxiliary common electrode covering the common line,

wherein the common electrode is electrically connected to the auxiliary common electrode and is formed of the same transparent material, ITO.

As to claim 27, APA in view of Jeon, Wakagi, and Ando discloses the LCD device wherein a common pad at an end of the common line is well known in the art of liquid crystals and would obviously be beneficial to allow easy electrical connection of the driving circuit to the common line.

As to claim 28, 29, and 30, APA in view of Jeon, Wakagi, and Ando discloses the LCD device of claim 17, further comprising an auxiliary gate line of ITO and a (an auxiliary) gate pad under the gate line and the gate pad (, respectfully).

APA in view of Jeon, Wakagi, and Ando does not explicitly disclose a device further comprising an auxiliary gate line of ITO and a (an auxiliary) gate pad *under* the gate line and the gate pad (, respectfully).

Ishikura teaches in Figure 1 (col. 3, lines 34-54) a device wherein a portion of the ITO transparent electrode, 5, (Applicant's auxiliary gate line and auxiliary gate pad) overlies a portion of the principle electrocunductive layer, 12, (Applicant's gate line and gate pad), to improve conductivity and reduce resulting voltage waveform deformation (or distortion) (col. 1, lines 14-39).

Ishikura is evidence that ordinary workers in the art of liquid crystals would find the reason, suggestion, or motivation to add a metal layer under the transparent

electrode layer to improve conductivity and reduce resulting voltage waveform deformation (or distortion).

Therefore, it would have been obvious to one having ordinary skill in the art of liquid crystals at the time the invention was made to modify the LCD of APA in view of Jeon, Wakagi, and Ando with the transparent electrode over the metal conductive layer of Ishikura, resulting in an auxiliary gate line of ITO (same as common electrode ITO) and a (an auxiliary) gate pad *under* the gate line and the gate pad (respectfully).

7. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over APA in view of Jeon, Wakagi, Ando, and Ishikura, as applied to claim 23 above, and further in view of Colgan.

As to claim 26, APA in view of Jeon, Wakagi, Ando, and Ishikura discloses the device of claim 23.

APA in view of Jeon, Wakagi, Ando, and Ishikura dose not explicitly disclose a device wherein the transparent conductive material includes indium zinc oxide (IZO).

Colgan teaches the use of IZO and ITO (col. 2, lines 58-67, col. 3, lines 1-4, col. 3, lines 21-22, and col. 6, lines 6-8) as preferred materials for the formation of transparent conductive layers.

Colgan is evidence that ordinary workers in the art of liquid crystals would find the reason, suggestion, or motivation to use IZO as a preferred material for the formation of transparent conductive layers.

Therefore, it would have been obvious to one having ordinary skill in the art of liquid crystals at the time the invention was made to modify the LCD of APA in view of Jeon, Wakagi, Ando, and Ishikura with the IZO of Colgan.

8. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over APA in view of Jeon, Wakagi, Ando, and Ishikura, as applied to claim 28 above, and further in view of Colgan.

As to claim 31, APA in view of Jeon, Wakagi, Ando and Ishikura discloses the device of claim 28.

APA in view of Jeon, Wakagi, Ando, and Ishikura dose not explicitly disclose a device wherein the transparent conductive material includes indium zinc oxide (IZO).

Colgan teaches the use of IZO as a substitute material for ITO (col. 2, lines 58-67).

Colgan is evidence that ordinary workers in the art of liquid crystals would find the reason, suggestion, or motivation to use IZO as a substitute material for ITO.

Therefore, it would have been obvious to one having ordinary skill in the art of liquid crystals at the time the invention was made to modify the LCD of APA in view of Jeon, Wakagi, Ando, and Ishikura with the IZO of Colgan.

10. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over APA in view of Jeon, Wakagi, Ando, and Yoshioka, as applied to claims above, and further in view of Nakashima, USPAT 6,049,365.

As to claim 16, APA in view of Jeon, Wakagi, Ando, and Yoshioka disclose the LCD device of claim 15.

APA in view of Jeon, Wakagi, Ando, and Yoshioka does not explicitly disclose a black matrix formed of the same opaque metal, Cr, as the pixel electrode.

Nakashima discloses the use of Cr along with numerous other opaque conductive metals (col. 10, lines 25-34) that are well known in the art of liquid crystals for forming layers that will block light, and Nakashima teaches the formation of color filters and a black matrix (col. 10, lines 46-48) as well known in the art. Motivational advantages for the use of Cr are numerous including good electrical conductivity, good corrosion resistance, and good light blocking ability. Motivational advantages for the use of a black matrix are numerous and include improved contrast and elimination of light leaks. Motivational advantages for making the black matrix out of the same material as the pixel electrode include reduced process steps, ease of manufacture by reducing source metal changes, and mutual compatibility with other materials.

Nakashima is evidence that ordinary workers in the art of liquid crystals would find the reason, suggestion, or motivation to form the black matrix and pixel electrode of Cr to achieve high contrast, eliminate light leaks, reduce process steps, and improve product corrosion resistance.

Therefore, it would have been obvious to one having ordinary skill in the art of liquid crystals at the time the invention was made to modify the LCD of APA in view of Jeon, Wakagi, Ando, and Yoshioka with a black matrix and pixel electrode formed of the Cr of Nakashima to achieve high contrast, eliminate light leaks, reduce process steps, and improve product corrosion resistance.

Response to Arguments

Applicant's arguments filed on 30 May 2006 have been fully considered but they are not persuasive.

Applicant's ONLY substantive arguments are as follows:

(1) Regarding base claims 4 and 17, the prior art does not teach the a storage electrode over the common line wherein the storage capacitor contacts the second connecting line.

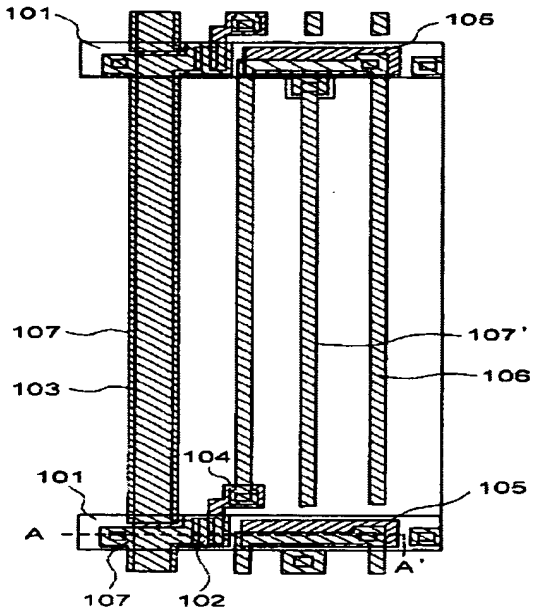
(2) Dependent claims are allowable because they directly or indirectly depend from an allowable base claim.

Examiner's responses to Applicant's ONLY arguments are as follows:

(1) It is respectfully pointed out that the Ando teaches 2) [col. 6, line 29 through col. 8, line 46] a storage capacitor, 105 (Applicants storage electrode), over the common line, 101, and between the pixel electrode and the first substrate, wherein the

storage capacitor contacts the second connecting line, 106, via a contact hole per Figures 1 and 2 in order to comprise his invention for an in-plane switched LCD with improved aperture ratio [abstract].

FIG. 1



per rejections above.

(2) It is respectfully pointed out that in so far as Applicant has not argued rejection(s) of the limitations of dependent claim(s), Applicant has acquiesced said rejection(s).

Any references cited but not applied are relevant to the instant Application.

Conclusion

Applicant's amendment necessitated any new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy L. Rude whose telephone number is (571) 272-2301. The examiner can normally be reached on Mon-Thurs.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Timothy L Rude
Examiner
Art Unit 2883

tlr

Frank G. Font
Supervisory Patent Examiner
Technology Center 2800